

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY LETTER PATENT
OF THE UNITED STATES IS:

1. A method for adhering parts with light energy curable
5 adhesive, said method comprising the steps of:

positioning a part and an adhering target at prescribed
relative position;

coating plural sections between the part and adhering target
with light energy curable adhesives;

10 irradiating light energy to at least one of the light energy
curable adhesives;

generating a curing shrinkage force in at least one of the
light energy curable adhesives;

15 changing curing energy in at least one of the light energy
curable adhesives when the part and target are displaced so that
at least one of the curing shrinkage forces can be changed and
stresses generated by the curing shrinkage forces can be offset;
and

20 adhering the part to the adhering target while maintaining
the part and target at the prescribed position.

2. The method according to claim 1, wherein said curing
energy changes one of an amount and a direction of at least one
of the stresses.

3. The method according to claim 1, further comprising the steps of:

detecting displacement of the part from the adhering target during curing of the light energy curable adhesive;

5 feeding back detection result; and

changing the curing shrinkage force in accordance with the fed back detection result so that the relative position of the part and the adhering target can be adjusted.

10 4. The method according to any one of claims 1 to 3, wherein said curing shrinkage forces are adjusted to be even by selectively irradiating the light energy to at least one of the light energy curable adhesives so that one of an amount and a direction of at least one of the stresses can be changed to be offset.

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5. The method according to any one of claims 1 to 3, wherein said curing shrinkage forces are adjusted to be even by changing intensity of the light energy irradiated to each of the light energy curable adhesives so that one of an amount and a direction of at least one of the stresses can be changed to be offset.

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6. The method according to any one of claims 1 to 3, wherein said curing shrinkage forces are adjusted to be even by changing an irradiation area of the light energy irradiated to at least one of the light energy curable adhesives so that one of an amount

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and a direction of at least one of the stresses can be changed to be offset.

5 7. The method according to any one of claims 1 to 3, wherein
said curing shrinkage forces are adjusted to be even by coating
at least one of the plural sections with plural light energy
curable type adhesives having different shrinkage
characteristics to be selectively irradiated when selected
displacement from said relative position occurs so as to change
10 and offset one of an amount and a direction of at least one of
the stresses.

15 8. The method according to any one of claims 1 to 3, wherein
said curing shrinkage forces are adjusted to be even by coating
at least one of the plural sections with a different amount of
light energy curable type adhesive so that one of an amount and
a direction of at least one of the stresses can be changed to be
offset.

20 9. The method according to any one of claims 1 to 3, wherein
said curing shrinkage forces are adjusted to be even by coating
at least one of the plural sections with light energy curable type
adhesive in a different shape so that one of an amount and a
direction of at least one of the stresses can be changed to be
25 offset.

10. A parts adhering apparatus, comprising:

a coating device configured to coat plural sections between a part and an adhering target with light energy curable adhesives
5 operative to adhere the part to the adhering target;

a light energy irradiating device configured to irradiate light energy for curing the light energy curable adhesive;

a detecting device configured to detect displacement of the part from the adhering target; and

10 a curing shrinkage force control device configured to control the light energy irradiating device to change the light so that curing shrinkage forces generated at the plural sections and applied to the adhering part and target can be even, and so that stresses generated by the curing shrinkage forces can be
15 offset when displacement is detected by the detecting device.

11. The parts adhering apparatus according to claim 10, wherein said light energy irradiating device changes the energy of the light in order to change at least one of the curing shrinkage forces so that one of an amount and a direction of at least one
20 of the stresses can be changed to be offset.

12. The parts adhering apparatus according to claim 10, further comprising a feed back device configured to feed back
25 detection result to a light energy irradiating device controller

so as to change the light energy so that a relative position of the part and the adhering target can be adjusted.

13. The parts adhering apparatus according to any one of
5 claims 10 to 12, further comprising an activation control device
configured to selectively activate the light energy irradiating
device in accordance with displacement detected by the detecting
device so as to change at least one of the curing shrinkage forces
so that one of an amount and a direction of at least one of the
10 stresses can be changed to be offset.

14. The parts adhering apparatus according to any one of
claims 10 to 12, further comprising an irradiation intensity
control device configured to change intensity of the light energy
15 in accordance with displacement detected by the detecting device
so as to change at least one of curing shrinkage forces so that
one of an amount and a direction of at least one of the stresses
can be changed to be offset.

20 15. The parts adhering apparatus according to any one of
claims 10 to 12, further comprising an irradiation area control
device configured to change an irradiation area of the light energy
in accordance with displacement detected by the detecting device
so as to change at least one of curing shrinkage forces so that
25 one of an amount and a direction of at least one of the stresses

can be changed to be offset.

16. The parts adhering apparatus according to any one of
claims 10 to 12, wherein one of an amount and a direction of at
5 least one of said stresses is changed by providing plural light
energy curable type adhesive having different shrinkage
characteristics to at least one of the curing sections.

17. The part adhering apparatus according to any one of
10 claims 10 to 12, wherein one of an amount and a direction of at
least one of said stresses is changed and differentiated from
another one of the stresses by providing a different amount of
the light energy curable adhesive to at least one of the curing
sections.

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18. The parts adhering apparatus according to any one of
claims 10 to 12, wherein one of an amount and a direction of at
least one of said stresses is changed by coating light energy
curable adhesive in a different shape at least at one of the plural
20 sections.